```
SEQUENCE LISTING
      (1) GENERAL INFORMATION:
 5
            i) APPLICANT: Griffith, Irwin J.
                          Kuo, Mei-Chang
                          Luqman, Mohammad
 10
          (ii) TITLE OF INVENTION: T CELL EPITOPES OF RYEGRASS POLLEN.
                                    ALLERGEN
         (iii) NUMBER OF SEQUENCES: 58
15
          (iv) CORRESPONDENCE ADDRESS:
                 (A) ADDRESSEE: LAHIVE & COCKFIELD
                (β) STREET: 60 State Street, suite 510
                (d) CITY: Boston
                    STATE: Massachusetts
20
                (E)
                    COUNTRY: USA
                (F)\ZIP: 02109
           (v) COMPUTER READABLE FORM:
                (A) MEDIUM TYPE: Floppy disk
25
                (B) COMPUTER: IBM PC compatible
                (C) OPERATING SYSTEM: PC-DOS/MS-DOS
                (D) SOFTWARE: ASCII Text
\nabla
          (vi) CURRENT APPLICATION DATA:
 30
                (A) APPLICATION NUMBER: US 08/106,016
                (B) FILING DATE: 31-AUG-1993
                (C) CLASSIFICATION:
        (viii) ATTORNEY/AGENT INFORMATION:
 35
                (A) NAME: Amy E. Mandragouras
                (B) REGISTRATION NUMBER: 36,207
                (C) REFERENCE/DOCKET NUMBER: 075 (IMI-040cp2PC)
          (ix) TELECOMMUNICATION INFORMATION:
 40
                (A) TELEPHONE: (617) 227-7400
                (B) TELEFAX: (617) 227-5941
      (2) INFORMATION FOR SED ID NO:1:
 45
           (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 1229 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: single
 50
                (D) TOPOLOGY: linear
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(ii) MOLECULE TYPE: dDNA



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			(ix)	FEA	1														
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			(ix)	FEA															
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			(xi)	SEÇ	ODENC	E DE	ESCRI	PTIC	N: S	EQ I	D NC	:1:							
1	5	CGCT	TATCO	CT C	ccro	GTAC	CA AA	CAAA	CGCF	AGA	GCAG	CA A	ATG G	CC G	TC C	CAG A	AAG		54
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2	0.						Phe												102
		-20			1		-15					-10					- 5		
							GAC												150
2	25	Ala	ser	Tyr	Ala	AIA 1	Asp	Ala	GIĀ	1 y r 5	IIII	PIO	AIA	Ата	10	AIA	1111		
\		CCG	GCT	ACT	CCT	GCT	GCC	ACC	CCG	GCT	GCG	GCT	GGA	GGG	AAG	GCG	ĄCG		198
		Pro	Ala	Thr 15	Pro	Ala	Ala	Thr	Pro 20	Ala	Ala	Ala	Gly	Gly 25	Lys	Ala	Thr		
3	30				٠,.			٠											
							CTG Leu												246
			30			1		35		_			40	,-			-		
3	35						GCC												294
		Ala 45	Val	Ala	Ala	Alla	Ala 50	Asn	Ala	Pro	Pro	Ala 55	Asp	Lys	Phe	Lys	Ile 60		
		ጥጥር	GAG	GCC	GCC	THE	TCC	GAG	ፐሮሮ	ሞሮሮ	DAG	GGC	СТС	СТС	GCC	ACC	TCC		342
4	40					Phe	Ser				Lys					Thr			
						6 5					70					75			
							GGC Gly												390
4	45	ara	ALG	шуз	80		Ory	Leu	-10	85	_,5	204			90	-1-			
							GCC												438
					Lys		Ala			Ala					Lys				
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			į															
5			1		GCC Ala													486
					GCC Ala													534
10					GGT Gly 145													582
15					GCC Ala													630
20					GAG Glu													678
25					GAG Glu													726
25 1					TAC													774
30					GAG Glu 225									Ala				822
35					GC¢ Ala													870
40				Ala	ACC Thr	1					_		_	_				918
45			Ala		GGC Gly	١.		Ala		TÇAG	CTT	GCTA	ATAT.	AC T.	ACTG.	AACGT		972
45	ATG	TATG	TGC	ATGA	TCCG	gg c	GGCG	AGTG	G TT	TTGT	TGAT	AAT	TAAT	CTT	CGTT	TTCGT	T	1032
	TCA	TGCA	.GCC	GCGA	TCGA	ga G	GGCT	TGCA	T GC	TTGT	AATA	ATT	CAAT	ATT	TTTC.	ATTTC	T.	1092
50	TTT	TGAA	TCT	GTAA	ATCC	cc A	TGAC	AAGT	A GT	GGGA	TCAA	GTC	GGCA	TGT	ATCA	CCGTT	'G	1152
	ATG	CGAG	TTT	AACG	ATGG	GG A	GTTT	ATCA	A AG	AATT	TATT	' ATT	AAAA	AAA	AAAA	АААА	LA.	1212



		AAAA	AAAA	AA A	AAAA	AA												1229
	5	(2)	INFC	RMAT	ION	FOR	SEQ	ID N	10:2:									
	10			i) s	(B)		GTH: E: a	301 minc	ami aci	no a .d	cids							
			(i	м ф і.	OLEC	ULE	TYPE	: pr	rotei	.n								
	15			- 1	EQUE													
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ii ii Saat daas daan daan daan daab badi	20	Val	Ala	Gly	Pro	Ala -5		Ser	Tyr	Ala	Ala 1	Asp	Ala	Gly	Tyr 5	Thr	Pro	
		Ala	Ala	Ala 10	Ala	Thr	Pro	Ala	Thr 15	Pro	Ala	Ala	Thr	Pro 20	Ala	Ala	Ala	
i	25		25	Lys				30					35	•		2		
91	30	Ala 40	Gly	Phe	Lys	Ala	Ala 45	Val	Ala	Ala	Ala	Ala 50	Asn	Ala	Pro	Pro	Ala 55	
		Asp	Lys	Phe	Lys	Ile 60	Phe	Glu	Ala	Ala	Phe 65	Ser	Glu	Ser .f	Ser	Lys 70	Gly	
	35	Leu	Leu	Ala	Thr 75	Ser	Ala	Ala	Lys	Ala 80	Pro	Gly	Leu	Ile	Pro 85	Lys	Lėu	
		Asp	Thr	Ala 90	Tyr	Asp	Val	Ala	Tyr 95	Lys	Ala	Ala	Glu	Gly 100	Ala	Thr	Pro	
	40	Glu	Ala 105	Lys	Tyr	Asp	Ala	Phe 110	Val	Thr	Ala		Thr 115	Glu	Ala	Leu	Arg	·
	45	Val 120		Ala	Gly	Ala	Leu 125		Val	His	Ala	Val 130	Lys	Pro	Ala	Thr	Glu 135	
	.5	Glu	Val	Pro	Ala	Ala 140		Ile	Pro	Thr	Gly 145		Leu	Gln	Ile	Val 150		
	50.	Lys	Ile	Asp	Ala 155		he	Lys	Ile	Ala 160		Thr	Ala	Ala	Asn 165		Ala	
		Pro	Thr	Aen	λen	Tare	Dhe	Thr	. Val	Phe	Glu	Ser	Ala	Phe	Asn	Lvs	Ala	



-51-

BEOSTL TOBASA





					1												
	Leu	Asn 185	Glu	Cys	Thr	Gly	Gly 190	Ala	Tyr	Glu	Thr	Tyr 195	Lys	Phe	Ile	Pro	
5	Ser 200	Leu	Glu	Ala	Ala	Val 205	Lys	Gln	Ala	Tyr	Ala 210	Ala	Thr	Val	Ala	Ala 215	
10	Ala	Pro	Glu	Val	Lys 220	Tyr	Ala	Val	Phe	Glu 225	Ala	Ala	Leu	Thr	Lys 230	Ala	
	Ile	Thr	Ala	Met 235	Thr	Gln	Ala	Gln	Lys 240	Ala	Gly	Lys	Pro	Ala 245	Ala	Ala	
15	Ala	Ala	Thr 250	Gly	Ala	Ala	Thr	Val 255	Ala	Thr	Gly	Ala	Ala 260	Thr	Ala	Ala	
	Ala	Gly 265	Ala	Ala	Thr	Ala	Ala 270	Ala	Gly	Gly	Tyr	Lys 275	Ala				
20	(2)	INFO	ORMA:	rion	FOR	SEQ	ID 1	NO:3	•								
		(i)		QUENC													
				4) LI 3) TY		amir				3							
25 - 1			(I) T(OPOLO	GY:	line	ear						,			
ر ۱		(ii)	MOI	LECUI	E T	PE:	pept	ide					-		*		
30		(v)	FRA	AGMEI	1T T)	Æ:	inte	ernal	-								
				٠,	_								-				
		(xi)	SEÇ	QUENC	CE DE	ESCRI	PTIC	ON: S	EQ I	D NC):3:		f				
35			a Asp	Ala	Gl _y	, Tyr	Thr	Pro	Ala	Ala	. Ala	Ala	Thr	Pro	Ala	Thr	Pro
		1				5					10					15	
		Ala	Ala	Thr		,											
40					20												
	(2)	INFO	RMAT	NOI	FOR	SEQ	ID N	10 : 4 :							•		
45		(i)	(<i>P</i>	QUENC A) LE B) TY O) TO	NGTH	: 20 amin	ami o ac	no a		ı							
		(ii)	MOI	ECUI	E TY	PE:	pept	ide			,		•				
50		(v)	FRA	GMEN	T TY	PB:	inte	rnal									



			(xi)	SEQ	UENC	E DE	SCRI	PTIO	N: S	EQ I	ои о	:4:						
5			Ala 1	Thr	Pro	Ala	Thr 5	Pro	Ala	Ala	Thr	Pro 10	Ala	Ala	Ala	Gly	Gly 15	Lys
			Ala	Thr	Thr	Asp 20												
10		(2)	INFO	RMAT	ION I	FOR 8	SEQ :	ID N	0:5:								•	
15			(i)	(A (B	UENCE) LEM) TYI) TOI	NGTH	: 20 amino	amin aci	no ao id									
			(ii)	MOL	ECUL	TYI	PE: 1	pepti	ide									
20			(v)	FRA	GMEN	TYI	PE: 1	inter	cnal									
5	١		(xi)	SEQ	UENCE	DES	SCRII	OIT	1: SI	EQ II	ONO:	:5:						
25			Ala 1	Ala	Ala	ы	Gly 5	Lys	Ala	Thr	Thr	Asp 10	Glu	Gln	Lys	Leu	Leu 15	Glu
30			Asp	Val	Asn	Ala 20											•	
		(2)	INFO	RMAT:	ION F	rok s	EQ I	D NO):6:									
35			(i)			GTH: E:\a	20 mino		o ac					ŗ	-			
			(ii)	MOLI	ECULE	T F	E: p	epti	.de									
40			(v)	FRAC	GMENT	TYE	E: i	.nter	mal									
45			(xi)	SEQ	JENCE	DES	CRIE	MOIT	I: SE	Q II	NO:	6:					-	
			Glu 1	Gln	Lys	Leu	Leu 5	Glu	Asp	Val	Asn	Ala 10	Gly	Phe	Lys	Ala	Ala 15	Val
50			Ala	Ala	Ala	Ala 20					٠							
		(2)	INFO	TAMS	ION F	OR S	Eþ 1	D NC):7:									

(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid 5 (D) topology: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal 10 (xi) SEQUENÇE DESCRIPTION: SEQ ID NO:7: 15 Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala Asp 5 15 Lys Phe Lys Ile 20 (2) INFORMATION FOR SEQ ID NO:8: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide 30 (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8: 35 Asn Ala Pro Pro Ala Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser Glu Ser Ser Lys 40 20 (2) INFORMATION FOR SEQ ID NO:9: (i) SEQUENCE CHARACTERISTICS: 45 (A) LENGTH 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide 50

(v) FRAGMENT TYPE: internal



		(xi)	SEQUENCE DI	ESCRIPTIO	N: SE	Q ID	NO:	9:						
5		Phe 1	Glu Ala Ala	a Phe Ser 5	Glu	Ser S	Ser	Lys 10	Gly	Leu	Leu	Ala	Thr 15	Ser
10		Ala	Ala Lys Ala	.										
10	(2)	INFO	RMATION FOR	SEQ ID N	10:10:									
15		(i)			no ac								,	· •
		(ii)	MOLECULE T	PE: pept	ide									
20		(v)	FRAGMENT T	PE: inte	ernal		٠							
25		(xi)	SEQUENCE DI	ESCRIPTIO	N: SE	Q ID	NO:	10:						
G1		Gly 1	Leu Leu Ala	Thr Ser	Ala	Ala 1	Lys	Ala 10	Pro	Gly	Léu		Pro 15	Lys
30		Leu	Asp Thr Ala	ı										
	(2)	INFO	RMATION FOR	SEQ ID N	10:11:				-	j* .				
35		(i)	SEQUENCE CI (A) LENGTI (B) TYPE (D) TOPOL	I: 20 ami amino ac	no ac									
40		(ii)	MOLECULE T	PE: pept	ide				-					
		(v)	FRAGMENT T	PE: inte	ernal									
45														
45		(xi)	SEQUENCE D	SCRIPTIO	N: SE	Q ID	NO:	11:						
50		Pro 1	Gly Leu Il	e Pro Lys 5	Leu .	Asp '	Thr	Ala 10	Tyr	Asp	Val	Ala	Tyr 15	Lys
50		Ala	Ala Glu Gl	7										

-56- (2) INFORMATION FOR SEQ ID NO:12: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Lyling Sequence Characteristics: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids
(2) INFORMATION FOR SEQ ID NO:12: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Ly 1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
1 5 10 15 Tyr Asp Ala Phe 20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
20 (2) INFORMATION FOR SEQ ID NO:13: (i) SEQUENCE CHARACTERISTICS:
(i) SEQUENCE CHARACTERISTICS:
· · · · · · · · · · · · · · · · · · ·
(B) TYPE: amino acid (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: peptide
(v) FRAGMENT TYPE: internal
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

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Ala Thr

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Ala Leu Arg Val

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(2) INFORMATION FOR SEQ ID NO:14:

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- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: peptide

		1		•									
	(v)	FRAGMENT	TYPE	intern	a l								
	(,												
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5	(xi)	SEQUENCE	DESCRI	PTION:	SEQ II	ои с	:14:						
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	1	Thr Ala	5 5	. GIU A	та пеп	Arg	10	тте	Ата	GIY	Ата	ьеи 15	GIU
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10	Va]	His Ala	Val										
			20										
	(0) 7777												
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15	(i)	SEQUENCE	CHARAC	יייב א קבייי	TCS.								
	(1)		GTH: 20										
			E: amir										
		(D) TOP	progx:	linear									
20			ļ										
20	(11)	MOLECULE	TYPE:	peptid	e								
	(v)	FRAGMENT	TVDE	intern	al								
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25										. ,			
- 1	(xi)	SEQUENCE	DESCRI	PTION:	SEQ II	ОИО	:15:		٠.				
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• •	1	Ala Gly	Ala Leu	i Giu v	al His	Ата	10 ·		Pro	Ala	Thr		Glu
30	•						10					15	
	Val	Pro Ala	Å la					,					
			20						. F				
	(0)		l_										
35	(2) INFC	RMATION F	TOR SEQ	ID NO:	16:							-	
55	(i)	SEQUENCE	CHARAC	יייבד ד פייי	TCS								
	,	(A) LEN	1										
		(B) TYP	E: amin	o acid									
40		· (D) TOP	progx:	linear									
40	(22)												
	(11)	MOLECULE	TYPE:	peptid	е								
	(v)	FRAGMENT	TYPE:	intern	al								
	(, ,												
45													
	(xi)	SEQUENCE	DESCRI	PTION:	SEQ II	ОИО	:16:						
	Tayo	Pro Ala	Thr Gla	ı Glu V	al Pro	- רמ	λlə	Lare	T1.	Dro	Th~	C1	Q1
50	Бys 1	, IIO MIA	IIII GIL	. GIU V	ar Pro	HIG	ALG	пÄд	тте	PLO	ınr	GTA	GIU

Leu Gln Ile Val

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			\	20	٠									
	(2)	INFO	RMATION FO	OR SEQ	ID NO	:17:								
5		(i)	SEQUENCE (A) LENG (B) TYPE (D) TOPO	TH: 20	amin no aci	o acida .d	3							
10		(ii)	MOLECULE	TYPE:	pepti	.de								
		(v)	FRAGMENT	TYPE:	inter	mal								
15		(xi)	SEQUENCE	DESCRI	IPTION	: SEQ]	ID NO	:17:						
20		Lys 1	Ile Pro T	Thr Gly 5	/ Glu	Leu Glr	ı Ile	Val 10	Asp	Lys	Ile	Asp	Ala 15	Ala
20		Phe	Lys Ile A	Ala 20										
25	(2)	INFO	RMATION FO	OR SEQ	ID NO):18:								
<i>\</i> \		(i)	SEQUENCE (A) LENG (B) TYPI (D) TOPG	GTH: 20 E: amin	o amir no aci	no acida .d	5				•	:		
30		(ii)	MOLECULE	TYPE:	pepti	lde				£				
		· (v)	FRAGMENT	TYPE:	inter	rnal				••				
35													•	
		(xi)	SEQUENCE	DESCR	IPTIO	1: SEQ	ID NO	:18:						
40		Asp 1	Lys Ile	Asp Ala	a Ala	Phe Ly		Ala 10	Ala	Thr	Ala	Ala	Asn 15	Ala
		Ala	Pro Thr	asn 20										
45	(2)	INFO	RMATION F	OR SEQ	ID NO	0:19:					•		•	
50		(i)	SEQUENCE (A) LENGE (B) TYP (D) TOP	GTH: 2 E: ami	0 amin no ac:	no acid id	s							
20		(ii)	MOLECULE											



		(v)	FRAGMENT TY	PE:	intern	al								
5		(xi)	SEQUENCE D	SCRI	PTION:	SEQ II	ONO:	:19:						
10		Ala 1	Thr Ala Ala	Asn 5	Ala A	la Pro	Thr	Asn 10	Asp	Lys	Phe	Thr	Val 15	Phe
		Glu	Ser Ala Phe					•						-
15	(2)		RMATION FOR				,							
		(1)	(A) LENGTE (B) TYPE: (D) TOPOLO	I: 20 amin	amino o acid	acids								
20		(ii)	MOLECULE TY	PE:	peptid	e				,				
		(v)	FRAGMENT TY	PE:	intern	al								
25											•			
11			SEQUENCE DE										•	
30		Asp 1	Lys Phe Thr	Val 5	Phe G	lu Ser	Ala	Phe 10	Asn	Lys	Ala	Leu	Asn 15	Glu
		Cys	Thr Gly Gly 20							, f				
35	(2)	INFO	RMATION FOR	SEQ	ID NO:	21:							•	
40		(i)	SEQUENCE CH (A) LENGTH (B) TYPE: (D) TOPOLO	I: 20 amin	amino o acid									
40		(ii)	MOLECULE TY			e								
45			FRAGMENT TY											
		(xi)	SEQUENCE DE	ESCRI	PTION:	SEQ II	ON C	:21:						
50														



5 (2) INFORMATION FOR SEQ ID NO:22: 10 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear 15 (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal 20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22: Ala Tyr Glu Thr Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala Val Lys 25 Gln Ala Tyr Ala (2) INFORMATION FOR SEQ ID NO:23: 30 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear 35 (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal 40 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23: Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala 45 Pro Glu Val Lys 20 50 (2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

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						35	٠. کر		'		
				-61	-						
			1								
		(B) TYPE	TH: 20 amino aci : amino acid LOGY: linear	ds							
	(ii)	MOLECULE '	TYPE: peptide								
	(v)	FRAGMENT '	TYPE: internal						•		
	(xi)	SEQUENCE 1	DESCRIPTION: SEQ	ID NO	:24:						
	Ala 1	Thr Val A	la Ala Pro G 5	lu Val	Lys 10	Tyr	Ala	Val	Phe	Glu 15	Ala
	Ala	Leu Thr Ly									
(2)	INFO	RMATION FO	R SEQ ID NO:25:								
	(i)	(A) LENG (B) TYPE	CHARACTERISTICS: TH: 20 amino acid : amino acid LOGY: linear	ds							
	(ii)	MOLECULE :	TYPE: peptide					,			
	(v)	FRAGMENT :	TYPE: internal						:	•	
		٠.									
	(xi)	SEQUENCE I	DESCRIPTION: SEQ	ID NO:	25:	•	j ^e				
	Tyr 1	Ala Val Ph	ne Glu Ala Ala Le	eu Thr	Lys 10	Ala	Ile	Thr	Ala	Met 15	Thr
	~1 n	71- 61- 1-									

Tyr Al 35

Gln Ala Gln Lys

- 40 (2) INFORMATION FOR SEQ ID NO:26:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 amino acids (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: peptide
 - (v) FRAGMENT TYPE: internal

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		(xi)	SEQUENCE	DESCRIPTION: SEQ ID NO:26	5:				
	5	Ala 1	Ile Thr	a Met Thr Gln Ala Gln Ly. 5 10		Gly Lys		Ala 15	Ala
		Ala	Ala Ala	nr)					
	10	(2) INFO	MATION	SEQ ID NO:27:					
	15	(i)	(A) LE (B) TY	CHARACTERISTICS: TH: 20 amino acids : amino acid LOGY: linear					
		(ii)	MOLECULE	TYPE: peptide					
	20	(v)	FRAGMENI	TYPE: internal					
S	-	(xi)	SEQUENCE	DESCRIPTION: SEQ ID NO:27	7:				
	25	Ala 1	Gly Lys	ro Ala Ala Ala Ala Th 5 10		Ala Ala		Val 15	Ala
<u>⊨</u> Mi		Thr	Gly Ala	la O	•		•		
	30	(2) INFO	RMATION I	R SEQ ID NO:28:		£			
\$_# 1 °	35	(i)	(A) LEI (B) TYI	CHARACTERISTICS: TH: 20 amino acids : amino acid					
			(D) TO	LOGY: linear					
		(ii)	MOLECULI	TYPE: peptide					
	40.	· (v)	FRAGMEN	TYPE: internal				•	
	45	(xi)	SEQUENC	DESCRIPTION: SEQ ID NO:2	8:				
	45	Gly 1	Ala Ala	hr Val Ala Thr Gly Ala A 5 1	la Thr	Ala Ala	Ala	Gly 15	Ala
	50	Ala	Thr Ala	la 0					
		(2) INFO	RMATION	OR SEQ ID NO:29:					





				Į.											
			(i)	SEQUENCE C	HARAC	TERISTI	CS:								
				(A) LENGT			acids								
	5			(B) TYPE:											
	3			(D) TOPOL	OG1:	Tillear									
			(ii)	MOLECULE T	YPE:	peptide									
			(v)	FRAGMENT T	YPE:	interna	1								
	10		•	1											
		*		1											
			(xi)	SEQUENCE D	ESCRI	PTION:	SEQ II	оио:	29:						
							1				~7	~ 3	_	_	
	15		Thr 1	Ala Ala Al	a Gly 5	Ala Al	a Thr	Ala	Ala 10	Ala	GIY	GIY	Tyr	Lуs 15	Ala
			т.		3				10						
	20	(2)	INFO	MATION FOR	SEQ	ID NO:3	0:								
	20		(i)	SEQUENCE C	HARAC	TERISTI	CS:								
			ν,	(A) LENGT	H: 20) amino									
				(B) TYPE:											
=	25			(D) TOPOL	OGY:	linear									
	ا ک		(ii)	MOLECULE F	YPE:	peptide						,			
=	91					•	,						1		
: [(V)	FRAGMENT 1	YPE:	interna	.1								
	30			٠,											
				`~			a=a *	D 170	2.0	•	,				
in the second			(xi)	SEQUENCE I	ESCR:	IPTION:	SEQ I	р ио	:30:		•				
			Ile	Ala Lys Va	l Pro	o Pro Gl	y Pro	Asn	Ile	Thr	Ala	Glu	Tyr	Ġly	Asp
	35		1		5				10					15	
			Two	Tro Lou As											
			цур	Trp Leu As											
					1										
	40	(2)	INFO	RMATION FOR	SEQ	ID NO:3	31:								
			(i)	SEQUENCE O	HARA	CTERIST:	cs:	•							
				(A) LENG			acids	}						•	
	45			(B) TYPE (D) TOPOI											
	ر ب			(D) 10201	JUGI:	TIMEAL									
			(ii)	MOLECULE :	YPE:	peptid	≘								
			(**\	FRAGMENT '	VDE.	intern	a l								
	50		(v)	PRAGMENT	1.55:	THICETH						•			

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31: Ile Ala Lys Val Xaa Pro Gly Xaa Asn Ile Thr Ala Glu Tyr Gly Asp 5 15 Lys Trp Leu Asp 10 (2) INFORMATION FOR SEQ ID NO:32: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid 15 (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal 20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32: 25 Thr Ala Glu Tr Gly Asp Lys Trp Leu Asp Ala Lys Ser Thr Trp Tyr . 10 Gly Lys Pro Thr 20 30 (2) INFORMATION FOR SEQ ID NO:33: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids 35 (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide 40 (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33: 45 Gly Ala Gly Pro Lys Asp Asn Gly Gly Ala Cys Gly Tyr Lys Asn Val Asp Lys Ala Pro 50 20

(2) INFORMATION FOR \$EQ ID NO:34:

. 5	(i)	SEQUENCE C (A) LENGT (B) TYPE: (D) TOPOL	H: 20 amin	amino o acid	acids l								
	(ii)	MOLECULE T	YPE:	peptid	le								
10	(v)	FRAGMENT T	YPE:	intern	nal								
	(xi)	SEQUENCE D	 ESCRI	PTION:	SEQ II	D NO:	34:						
15	Gly 1	Ala Gly Pr	o Lys 5	Asp A	Asn Gly	Gly	Ala 10	Cys	Gly	Tyr	Lys	Asp 15	Val
20	Asp	Lys Ala Pr 20	i .										
20	(2) INFO	RMATION FOR	SEQ	ID NO:	:35:								
25	(i)	SEQUENCE C (A) LENGT (B) TYPE: (D) TOPOI	H: 20 amir	amino	o acids 1					,			
$\mathcal{L}_{\mathcal{L}}$	(ii)	MOLECULE T	YPE:	peptio	de							•	
30	(v)	FRAGMENT T	YPE:	inter	nal .						•		
35		SEQUENCE D						Di		G1	1 6-4-		G1-
	Cys 1	Gly Tyr Ly	s As	o vai i	asp Lys	Ala	10	Pne	ASII	GIY	мес	1nr 15	GIŞ
40	Cys	Gly Asn Th											
	(2) INFO	RMATION FOR	R SEQ	ID NO	:36:								
45	(i)	SEQUENCE (A) LENGT (B) TYPE: (D) TOPOI	ΓΗ: 2 : ami	0 amin no aci	o acids d	:							
50	(ii)	MOLECULE	TYPE:	pepti	de								
50	(v)	FRAGMENT	TYPE:	inter	nal								

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36: Phe Asn Gly Met Thr Gly Cys Gly Asn Thr Pro Ile Phe Lys Asp Gly 5 5 Arg Gly Cys Gly 10 (2) INFORMATION FOR SEQ ID NO:37: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid 15 (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide ロロマロマ 20 ロマロマ 25 11 (1) 30 (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:37: Pro Ile Phe Lys Asp Gly Arg Gly Cys Gly Ser Cys Phe Glu Ile Lys Cys Thr Lys Pro 30 (2) INFORMATION FOR SEQ ID NO:38: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids 35 (B) TYPE amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide 40 (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38: 45 Ser Cys Phe Glu Ile Lys Cys Thr Lys Pro Glu Ser Cys Ser Gly Glu 15 10 Ala Val Thr Va 50 20

(2) INFORMATION FOR SEQ ID NO:39:





5		(i)	(A) LENG (B) TYPE	TH: 20 : amir	amino no acid	acids								
	((ii)	WOLECALE .	TYPE:	peptid	е								
10		(v)	FRAGMENT	TYPE:	intern	al							·	
	((xi)	SEQUENCE	DESCR	PTION:	SEQ ID	NO:3	39:						
15		Glu 1	Ser Cys S	er Gly	y Glu A	la Val			Thr	Ile	Thr	Asp	Asp 15	Asn
		Glu		1										
20	(2)	INFOR	RMATION FO	R SEQ	ID NO:	40:								
25.		(i)	(A) LENG (B) TYPE	TH: 2	0 amino no ació	acids 1		•						
91		(ii)		1								•	•	
30		(v)	FRAGMENT	TYPE:	inter	nal			,					
										£				
35		(xi)	SEQUENCE	DESCR	IPTION	: SEQ II	ONO:	40:					•	
55		Thr 1	Ile Thr	Asp As	p Asn (Glu Glu	Pro	Ile 10	Ala	Pro	Tyr	His	Phe 15	Asp
40		Leu											•	
	(2)	INFO	RMATION F	OR SEC	ON DI Q	:41:								
45		(i)	(A) LENG (B) TYP	GTH: 2 E: ami	20 amin Lno aci	o acids d								
		(ii)	MOLECULE	TYPE	: pepti	de								
50		(v)		1										
	10 15 20 25 30 35	10 15 20 (2) 25 30 35 40 (2)	5 (ii) (v) 10 (xi) 15 Glu 1 Glu 20 (2) INFOR (ii) 30 (v) 35 Thr 1 Leu 40 (2) INFO (ii) 45	(A) LENG (B) TYPE (B) TYPE (D) TOPO (ii) MOLECULE (V) FRAGMENT (V) FRAGMENT (V) FRAGMENT (V) FRAGMENT (V) FRAGMENT (V) FRAGMENT (V) SEQUENCE (A) LENG (B) TYPE (D) TOPO (ii) MOLECULE (Xi) SEQUENCE	(A) LENGTH: 20 (B) TYPE: amin (D) TOPOLOGY: (ii) MOLECULE TYPE: (v) FRAGMENT TYPE: (i) SEQUENCE CHARA (A) LENGTH: 2 (B) TYPE: amin (D) TOPOLOGY: (ii) MOLECULE TYPE: (xi) SEQUENCE DESCRIPTION FOR SEQUENCE OF SEQUEN	(A) LENGTH: 20 amino (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptid (v) FRAGMENT TYPE: intern (v) FRAGMENT TYPE: intern (xi) SEQUENCE DESCRIPTION: (xi) SEQUENCE DESCRIPTION: (a) SEQUENCE CHARACTERIST (b) TYPE: amino acid (c) TOPOLOGY: linear (ii) MOLECULE TYPE: peptid (xi) SEQUENCE DESCRIPTION (xi) SEQUENCE TYPE: peptid (xi) SEQUENCE DESCRIPTION (xi) SEQUENCE CHARACTERIS (xi) SEQUENCE CHARA	(ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID (xi) SEQUENCE DESCRIPTION: SEQ ID (xi) SEQUENCE CHARACTERISTICS: (xi) LENGTH: 20 amino acids (yi) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (xi) SEQUENCE DESCRIPTION: SEQ ID (xi) SEQUENCE CHARACTERISTICS: (xi) LENGTH: 20 amino acids (yi) SEQUENCE CHARACTERISTICS: (xi) LENGTH: 20 amino acids (yi) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide	(A) LENGTH: 20 amino acids (B) TMPE: amino acid (B) TMPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15 Glu Ser Cys Ser Gly Glu Ala Val Thr Y 1 5 Glu Glu Pro I i e 20 (2) INFORMATION FOR SEQ ID NO:40: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35 Thr Ile Thr Asp Asp Asn Glu Glu Pro 1	(A) LENGTH: 20 amino acids (B) TMPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: (xi) SEQUENCE TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: 35 Thr Ile Thr Asp Asp Asn Glu Glu Pro Ile 1 Leu Ser Gly His 20 (2) INFORMATION FOR SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide	(A) LENGTH: 20 amino acids (B) TMPE: amino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (2) INFORMATION FOR SEQ ID NO:40: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: Thr Ile Thr Asp Asp Asp Glu Glu Pro Ile Ala 1 (xi) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) INFORMATION FOR SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide	(A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (2) INFORMATION FOR SEQ ID NO:40: (1) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: Thr Ile Thr Asp Asp Asn Glu Glu Pro Ile Ala Pro 1 (2) INFORMATION FOR SEQ ID NO:41: (3) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) TOPOLOGY: linear (i) SEQUENCE DESCRIPTION: SEQ ID NO:40: (i) SEQUENCE OF SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide	(A) Langth: 20 amino acids (B) Type: amino acids (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: 15 Glu Ser Cys Ser Gly Glu Ala Val Thr Val Thr Ile Thr 1 10 Glu Glu Pro Ile 20 (2) INFORMATION FOR SEQ ID NO:40: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide 30 (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: 35 Thr Ile Thr Asp Asp Asp Glu Glu Pro Ile Ala Pro Tyr 1 10 Leu Ser Gly His 20 (2) INFORMATION FOR SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: dmino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide	(A) LENGTH: 20 amino acids (B) Type: amino acids (D) Topology: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (2) INFORMATION FOR SEQ ID NO:40: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: 35 Thr Ile Thr Asp Asp Asp Glu Glu Pro Ile Ala Pro Tyr His 1 Leu Ser Gly His 20 amino acids (B) TYPE: amino acid (C) INFORMATION FOR SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide	(A) LENGTH: 20 amino acids (B) TMPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: (xi) SEQUENCE CHARACTERISTICS: (xi) LENGTH: 20 amino acids (b) TYPE: amino acid (c) TOPOLOGY: linear (xi) MOLECULE TYPE: peptide (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: Thr Ile Thr Asp Asp Asn Glu Glu Pro Ile Ala Pro Tyr His Phe 1 Leu Ser Gly His 20 (2) INFORMATION FOR SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (C) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide

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	(xi)	SEQUENÇE I	ESCRI	PTION	1: SE	EQ II	ON C	:41:						
5	Ala 1	Pro Tyr H:	s Phe 5	Asp	Leu	Ser	Gly	His 10	Ala	Phe	Gly	Ser	Met 15	Ala
	Asp	Asp Gly G												
10	(2) INFOR	NATION FOI	R SEQ	ID NO	0:42	:								
15	(i)	SEQUENCE (A) LENGT (B) TYPE (D) TOPO	TH: 20 : amin	amir o aci	no ao id								•	· •
13	(::)													
		MOLECULE												
20	(v)	FRAGMENT	TYPE:	inte	rnal									
	(xi)	SEQUENCE	DESCRI	PTIO	N: S1	EQ I	on c	:42:						
25		Phe Gly S	l .	Ala	Asp	Asp	Gly	Glu 10	Glu	Gln	Ļys	Leu	Arg 15	Ser
9	1	al al T	5					10						
,	Ala	Gly Glu L 2	1											
30	(2) INFO	RMATION FO	RSEQ	ID N	0:43	:			-	£				
35	(i)	SEQUENCE (A) LENG (B) TYPE (D) TOPO	TH: 20	amii	no a id								,	
	(ii)	MOLECULE	TYPE:	pept	ide									
40	(v)	FRAGMENT	TYPE:	inte	rnal		·							
45	(xi)	SEQUENCE	DESCRI	PTIO	N: S	EQ I	D NO	:43:						
	Glu 1	Gln Lys L	eu Arg	g Ser	Ala	Gly	Glu	Leu 10	Glu	Leu	Gln	Phe	Arg 15	Arg
50	Val	Lys Cys I	ys 0											



	(2)	INFORMATION FOR SEQ ID NO:44:	
5		(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear	
10		(ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal	
15		(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:	
		Glu Leu Gln Phe Arg Arg Val Lys Cys Lys Tyr Pro Asp Asp Thr 1 10 15	Lys
20		Pro Thr Phe His	
	(2)	INFORMATION FOR SEQ ID NO:45:	
25 G \		(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear	
30		(ii) MOLECULE TYPE: peptide (v) FRAGMENT TYPE: internal	
35		(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:	
40		Tyr Pro Asp Asp Thr Lys Pro Thr Phe His Val Glu Lys Ala Ser 1 10 15 Pro Asn Tyr Leu	Asn
45	(2)	INFORMATION FOR SEQ ID NO:46: (i) SEQUENCE CHARACTERISTICS:	
50		(A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear	
		(ii) MOLECULE TYPE: peptide	



	(v)	FRAGMENT	TYPE:	inter	nal		٠						
5	(xi)	SEQUENCE	DESCRI	PTION	: SEQ I	D NO	:46:						
	Val 1	Glu Lys 1	ala Ser 5	Asn 1	Pro Asn	Tyr	Leu 10	Ala	Ile	Leu	Val	Lys 15	Tyr
10	Val	Asp Gly	Asp 20				•						
	(2) INFO	RMATION F	OR SEQ	ID NO	:47:								
15	(i)	SEQUENCE (A) LENG (B) TYPE (D) TOPE	TH: 20 : amin	amino o acio	o acids d								
20	(ii)	MOLECULE	TYPE:	peptio	de								
	(v)	FRAGMENT	TYPE:	inter	nal								
25	(xi)	SEQUENCE	DESCRI	PTION	: SEQ I	D NO	:47:			-			
30	Val 1	Glu Lys (ly Ser 5	Asn 1	Pro Asn	Tyr	Leu 10	Ala	Ile	Leu	Val	Lys 15	Tyr
30	Val	Asp Gly a	Asp 20			•			£				
35	(2) INFO	RMATION FO	R SEQ	ID NO	:48:								
33	(i)		GTH: 20 E: amin	amino o acio	o acids d								
40	44.0	(D) TOP											
		MOLECULE											
45	(v)	FRAGMENT	TYPE:	inter	nal								
	(xi)	SEQUENCE	DESCRI	PTION	: SEQ I	D NO	:48:						
50	Ala 1	Ile Leu	Val Lys	Tyr	Val Asp	Gly	Asp 10	Gly	Asp	Val	Val	Ala 15	Val
	Asp	Ile Lys	Gļu										

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		(2)	INFOR	MATIO	и Еф	R SEQ	ID	NO:4	9:								
	5		(i)	(B)		H: 2	0 am no a	ino a	CS: acids								
	10		(ii)	MOLEC	ULE 1	TYPE:	pep	tide									
			(v)	FRAGM	ENT T	TYPE:	int	erna	1				•				,
	15		(xi)	SEQUE	NCE I	DESCR	IPTI	ON:	SEQ I	D NO	:49:						
			Gly 1	Asp V	al Va	al Al 5	a Va	l As	p Ile	Lys	Glu 10	Lys	Gly	Lys	Asp	Lys 15	Trp
	20		Ile	Glu I	eu Ly 20												
in the state of th		(2)	INFOR	MATIC	N FOI	R SEQ	ID	NO:5	0:								
	25		(i)	SEQUE					CS: acids					,			
. (71			(B)	TYPE TOPOL	: am	no a		acras				•				
Man Vinn	30		(ii)	MOLEC	TULE :	TYPE :	pep	tide				•					
Park Hum			(v)	FRAGM	ENT :	TYPE:	int	erna	1			•	f				
	35		/# N						-	- ···							
				SEQUE			1										
	40		Lys 1	Gly I	ys A	sp Ly 5	S Tr	p Il	e Glu	Leu	Lys 10	Glu	Ser	Trp	Gly	Ala 15	Val
			_	Arg 1	2	0											
	45	(2)	INFOR	OITAMS	ON FO	R SEQ	‡D	NO:5	1:								
			(i)	(B)	LENG'	TH: 2 : ami	o an	nino acid	CS: acids							,	
	50				TOPO										,	i	
			(ii)	MOLE	CULE	TYPE:	per	ptide	!								

			(v)	FRAG	MENT	TYP	E:	inte	mal									
	5		(xi)	SEQU	JENCE	DES	CRI	OITG	1: S1	EQ I	D NO	:51:						
			Thr 1	Pro	Asp 1		Leu 5	Thr	Gly	Pro	Phe	Thr 10	Val	Arg	Tyr	Thr	Thr 15	Glu
	10		Gly	Gly	Thr I	Lys 20											-	
		(2)	INFO	RMATI	ON F	OR \$	EQ	ID NO	D:52	:								
	15		(i)	(A) (B)	JENCE LENG TYP:	GTH E: a	20 min	amii o ac:	no a id									
lj Lj	20		(ii)	MOLE	ECULE	TYF	E:	pept:	ide									
			(v)	FRAC	EMENT	TYP	E:	inte	rnal									
P	25		(xi)	SEQU	JENCE	DES	CRI	PTIO	N: S	EQ I	D NO	:52:			,	;		
H L L L L L	30		Val 1	Arg	Tyr	Thr	thr	Glu	Gly	Gly	Thr	Lys 10	Ser	Glu	Val	Glu	Asp 15	Val
II II	50		Ile	Pro	Glu	Gly 20							-	, P				
P# "	35	(2)	INFO	RMAT	ION F	OR S	SEQ	ID N	O:53	:							•	
	33		(i)	(A	UENCE) LEN) TYP	GTH	: þ:) ami	no a		3							
	40			(D) TOP	OLO	GY:	line	ar									
					ECULE		-1						•					
			(v)	FRA	GMENT	TY!	PE	inte	rnal	-								
	45		,															
					UENCE		- 1											
	50		Ser 1	Glu	. Val	Glu	As:	p Val	L Ile	e Pro	o Gli	ı Gly 10	, Trp) Lys	a Ala	Asp	Thr 15	ser

Tyr Ser Ala Lys





		(2) INFORMATION FOR SEQ ID NO:54:
	5	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 33 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear
	10	(ii) MOLECULE TYPE: peptide
	10	(v) FRAGMENT TYPE: N-terminal
	15	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:
<u> </u>		Ala Asp Ala Gly Tyr Thr Hyp Ala Ala Ala Ala Thr Hyp Ala Thr Hyp 1 10 15
	20	Ala Ala Thr Hyp Ala Ala Ala Gly Gly Lys Ala Thr Thr Asp Glu Gli 20 25 30
T.		Lys
	25	(2) INFORMATION FOR SEQ ID NO:55:
<u> </u>	17	(i) SEQUENCE CHARACTERISTICS:
	30	(A) LENGTH: 20 amino acids (B) TYPE: amino acid
=	50	(D) TOPOLOGY: linear
		(ii) MOLECULE TYPE: peptide
	35	(v) FRAGMENT TYPE: internal
		(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:
	40	Ala Lys Ser Thr Trp Tyr Gly Lys Pro Thr Gly Ala Gly Pro Lys As
		1 5 10 15
	45	Asn Gly Gly Ala 20
	*	(2) INFORMATION FOR SEQ ID NO:56:
	50	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear



	(ii) MOLECULE TYPE: peptide	
	(v) FRAGMENT TYPE: internal	
5	(V) FRAGRENT TIPE. Internal	
	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:	
10	Glu Ser Trp Gly Ala Val Trp Arg Ile Asp Thr Pro Asp Lys Leu Thr 1 10 15	
15	Gly Pro Phe Thr	
	(2) INFORMATION FOR SEQ ID NO:57:	
20	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 1181 base pairs (B) TYPE nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear	
25	(ii) MOLECULE TYPE: cDNA	
91	(ix) FEATURE:	
30	(A) NAME/REY: CDS (B) LOCATION: 53124	
35	(ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 125961	
33	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:	
	GAATTCGAGG ATCCGGGTAC CATGGCTCCG ACAAACCAAC GCAAGAGCAG CA ATG	55
40		
	GCA GTG CAG CAG TAC ACG GTG GCG CTG TTC CTG GCC GTG GCC TCG TGT Ala Val Gln Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Ser Cys -20 -15 -10	103
45	CGG GCC CGC GCC TCC TAC GCC GCC GAC GCC GGC TAC GCC CCC GCC ACT Arg Ala Arg Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro Ala Thr -5 1 5	151
50	CCC GCC ACC CCG GCT ACC CCC GCG GCC CCA GGC GCA GCG GTG CCA GCA Pro Ala Thr Pro Ala Thr Pro Ala Ala Pro Gly Ala Ala Val Pro Ala 20 25	199







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	5	GGG Gly	AAG Lys	GCG Ala	GCG Ala	ACC Thr 30	GAG Glu	GAG Glu	CAG Gln	AAG Lys	CTG Leu 35	ATC Ile	GAG Glu	AAG Lys	ATC Ile	AAC Asn 40	GCC Ala	247
	J	GGC Gly	TTC Phe	AAG Lys	GCC Ala 45	GCC Ala	GTG Val	GCG Ala	GCC Ala	GCC Ala 50	GCG Ala	GGC Gly	GTC Val	CCG Pro	CCA Pro 55	GGC Gly	GAC Asp	295
	10	AAG Lys	TAC Tyr	AAG Lys 60	ACG Thr	TTC Phe	GTC Val	GAA Glu	ACC Thr 65	TTC Phe	GGC Gly	AAG Lys	GCC Ala	TCC Ser 70	AAC Asn	AAG Lys	GCC Ala	343
	15	TTC Phe	CTG Leu 75	GGG Gly	GAC Asp	CTC Leu	CCG Pro	ACC Thr 80	AAC Asn	TAC Tyr	GCC Ala	GAT Asp	GTC Val 85	AAC Asn	TCC Ser	AGG Arg	GCC Ala	 391
	20	CAG Gln 90	CTC Leu	ACC Thr	TCG Ser	AAG Lys	CTC Leu 95	GAC Asp	GCC Ala	GCC Ala	TAC Tyr	AAG Lys 100	CTC Leu	GCC Ala	TAC Tyr	GAC Asp	GCC Ala 105	439
think that then th	25	GCC Ala	CAG Gln	GGC Gly	GCC Ala	ACC Thr 110	CCC Pro	GAG GIu	GCC Ala	AAG Lys	TAC Tyr 115	GAC Asp	GCC Ala	TAC Tyr	GTC Val	GCC Ala 120	ACC Thr	487
: : (25 A\	CTC Leu	AGC Ser	GAG Glu	GCG Ala 125	CTC Leu	CGC Arg	ATC	ATC Ile	GCC Ala 130	GGC Gly	ACC Thr	CTC Leu	GAG Glu	GTC Val 135	CAC His	GCC Ala	535
այի մար կամ հա	30	GTC Val	AAG Lys	CCC Pro 140	Ala	GCC Ala	GAG Glu	GAG Glu	GTC Val 145	Lys	CCT Pro	ATC Ile	CCC Pro	GCC Ala 150	GGA Gly	GAG Glu	CTG Leu	583
•	35	CAG Gln	ATC Ile 155	Val	GAC Asp	AAG Lys	ATT	GAC Asp 160	Val	GCC Ala	TTC Phe	AGA Arg	ACT Thr 165	Ala	GCC Ala	ACC Thr	GCC Ala	631
	40	GCC Ala 170	Asn	GCC Ala	GCC Ala	CCC Pro	ACC Thr	Asn	GAC	AAG Lys	TTC	ACC Thr 180	. Val	TTC Phe	GAG Glu	ACC Thr	ACC Thr 185	679
	45	TTT Phe	AAC Asn	AAG Lys	GCC Ala	ATC	Lys	GAG Glu	ago Ser	ACG Thr	GGC Gly 195	Gly	ACC Thr	TAC Tyr	GAG	AGC Ser 200	TAC Tyr	727
	45	AAG Lys	TTC Phe	C ATT	CCC Pro 205	Thr	C CTI	GAC	GCC 1 Alá	GCC Ala 210	Val	AAC Lys	G CAG	GCC Ala	TAC Tyr 215	Ala	C GCC a Ala	775
	50	ACC Thr	GTC Val	C GCA L Ala 220	a Sei	GCC Ala	G CCC	GAC Glu	G GTC 1 Va: 22!	L Lys	TAC	GCC Ala	C GTO	TTT Phe 230	Glu	ACO 1 Th	C GCG r Ala	823

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CTG AAA AAG GCG GTC ACC GCC ATG TCC GAG GCC CAG AAG GAA GCC AAG 871 Leu Lys Lys Ala Val \Thr Ala Met Ser Glu Ala Gln Lys Glu Ala Lys 240 235 CCC GCC ACC GCC ACC CCC ACC GCA ACT GCC GCG GCC GCG GTG 919 Pro Ala Thr Ala Thr Pro Thr Pro Thr Ala Thr Ala Ala Ala Val 260 255 250 GCC ACC AAC GCC GCC GCC GCT GCT GGT GGC TAC AAA ATC 961 Ala Thr Asn Ala Ala Pro Val Ala Ala Gly Gly Tyr Lys Ile 270 TGATCAACTC GCTAGCAATA TACACATCCA TCATGCACAT ATAGAGCTGT GTATGTATGT 1021 GCATGCATGC CGTGGCGCCG CGCAAGTTTG CTCATAATTA ATTCTTGGTT TTCGTTGCTT 1081 GCATCCACGA GCGACCGAGC CCGTGGATAG TCGCATGTGT ATGTAATTTT TTCTGAGAAA 1141 1181 (2) INFORMATION FOR SEQ ID NO 58: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 279 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: protein (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5: Ala Asp Ala Gly Tyr Ala Pro Ala Thr Pro Ala Thr Pro Ala Thr Pro 5

35 Ala Ala Pro Gly Ala Ala Val Pro Ala Gly Lys Ala Ala Thr Glu Glu Gln Lys Leu Ile Glu Lys lle Asn Ala Gly Phe Lys Ala Ala Val Ala 40 Ala Ala Gly Val Pro Pro Gly Asp Lys Tyr Lys Thr Phe Val Glu 55 45 Thr Phe Gly Lys Ala Ser Asn Lys Ala Phe Leu Gly Asp Leu Pro Thr Asn Tyr Ala Asp Val Asn Ser Arg Ala Gln Leu Thr Ser Lys Leu Asp 90 . 50 Ala Ala Tyr Lys Leu Ala Tyr Asp Ala Ala Gln Gly Ala Thr Pro Glu



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				100					105					110		
5	Ala	Lys	Tyr 115	Asp	Ala	Tyr	Val	Ala 120	Thr	Leu	Ser	Glu	Ala 125	Leu	Arg	Ile
	Ile	Ala 130	Gly	Thr	Leu	Glu	Val 135	His	Ala	Val	Lys	Pro 140	Ala	Ala	Glu	Glu
10	Val 145	Lys	Pro	Ile	Pro	Ala 150	Gly	Glu	Leu	Gln	Ile 155	Val	Asp	Lys	Ile	Asp 160
	Val	Ala	Phe	Arg	Thr 165	Ala	Ala	Thr	Ala	Ala 170	Asn	Ala	Ala	Pro	Thr 175	Asn
15	Asp	Lys	Phe	Thr 180	Val	Phe	Glu	Thr	Thr 185	Phe	Asn	Lys	Ala	Ile 190	Lys	Glu
20	Ser	Ťhr	Gly 195	Gly	Thr	Tyr	Glu	Ser 200	Tyr	Lys	Phe	Ile	Pro 205	Thr	Leu	Glu
	Ala	Ala 210	Val	Lys	Gln	Ala	Tyr 215	Ala	Ala	Thr	Val	Ala 220	Ser	Ala	Pro	Glu
25	Val 225	Lys	Tyr	Ala	Val	Phe 230	Glu	Thr	Ala	Leu	Lys 235	Lys	Ala	Val	Thr	Ala 240
	Met	Ser	Glu	Ala	Gln 245	Lys	Glu	Ala	Lys	Pro 250	Ala	Thr	Ala	Thr	Pro 255	Ţhr
30	Pro	Thr	Ala	Thr 260	Ala	Ala	Ala	Ala	Val 265	Ala	Thr	Asn	Ala .f	Ala 270	Pro	Val
	Ala	Ala	Gly 275	Gly	Tyr	Lys	Ile									-0